

**MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN  
"NJSC "S. SEIFULLIN KAZAKH AGROTECHNICAL UNIVERSITY"**

Approve  
NJSC "Saken Seifullin Kazakh  
Deputy Chairman of the Management  
Board Academic Activity-Rector  
\_\_\_\_\_ A.M Abdyrov.  
« \_\_\_\_\_ » \_\_\_\_\_ 2021.

**CATALOG OF ELECTIVE COURSES**

For students in groups of educational programs

B073 Architecture

**Nur-Sultan, 2021**

**MINISTRY OF AGRICULTURE OF THE REPUBLIC OF KAZAKHSTAN  
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Brief description of elective disciplines of the educational program

Veterinary sanitary examination of crop products, fish farming and beekeeping

1	Name of course	Basics of architectural design
2	Code of course	OAP 1240
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	1
8	Prerequisites	1Picture 2Painting
9	Postrequisites	1Architectural design 2. Mastering the skills of graphic modeling
10	Course summary	1 fonts - architectural font 2. The concept of academic washing 3. Exercises in the technique of academic washing. 4.Exercises in the technique of academic washing. 5. Building perspectives using the right angle method. 6 building perspective of the simplest forms 7. Building the perspective of an architectural monument. Issuance of a task 8 building shadows 9. Layout and drawing of a drawing on a stretcher 10. Shading a perspective image
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques: materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

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Brief description of elective disciplines of the educational program

Veterinary pharmacology and toxicology

1	Name of course	Figure I
2	Code of course	R 1238
3	Cycle of course	BD-VK
4	Amount of credits	2
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	1
8	Prerequisites	1.Drawing Skills 2.Architectural graphics and layout, 3.Architectural composition
9	Postrequisites	1.Architectural drawing, 2.Special drawing
10	Course summary	1-2. Composition of geometric bodies-construction; 3-4. Composition of geometric bodies-chiaroscuro; 5-6. Architectural capital 7-8. Plaster head - construction; 9-10. Plaster head-chiaroscuro;
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques: materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Architectural composition
2	Code of course	AK 1201
3	Cycle of course	BD-VK
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	1
8	Prerequisites	1. Drawing, 2. Architectural graphics and layout
9	Postrequisites	1. Architectural design, 2. graduate design
10	Course summary	1. Goals, objectives of the discipline. General Composition Concepts 2. The main properties of volumetric-spatial forms 3. Types of compositional organization of compositional works 4. Categories of architectural composition. Identity, nuance, contrast. 5. Categories of architectural composition. Statics, dynamics, tectonics. Architectural scale. 6. Fixed assets of architectural composition. Symmetry, asymmetry, meter, rhythm 7. Volumetric modeling. 8. Spatial composition. Techniques for shaping space. 9. Frontality. Frontal composition. Methods for revealing frontality. 10. Emotional assessments in the perception of architectural form and space.
11	Learning outcomes	ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Architectural drawing
2	Code of course	AR 3209
3	Cycle of course	BD-VK
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1 Figure I 2Architectural graphics and layout, 3Architectural composition
9	Postrequisites	1.Architectural design 2.Basics of urban planning
10	Course summary	1. Fragment of an architectural detail (gypsum); 2. An architectural detail based on a full-scale drawing; 3.Gypsum head - construction 4.Gypsum head - chiaroscuro 5. Plaster figure-construction; 6. Plaster figure-study; 7. Living figure-construction; 8-9. The figure of a man in motion; 10. Composition of several figures;
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques: materials and tools.

1	Name of course	Art history
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2	Code of course	II 2233
3	Cycle of course	BD-VK
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.Culturology
9	Postrequisites	1.World history of architecture 2.History of architecture of Kazakhstan 3.Basics of urban planning 2.Degree design
10	Course summary	1-2. The art of ancient civilizations 3. European art of the Middle Ages Renaissance era. 4. Art of Classicism 5.Impressionism and its directions 6-7. Postmodern art 8.Artists of Kazakhstan 9-10 Contemporary genres of art
11	Learning outcomes	ON6 Study of history and causation of the emergence of different styles of architecture in the world. Study national traditions in the architecture of Kazakhstan. Learn to distinguish and use architectural styles in professional activities

1	Name of course	Engineering Graphics I
2	Code of course	IG 2207
3	Cycle of course	BD-VK
4	Amount of credits	2

5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.School drawing course 2.School geometry course
9	Postrequisites	1.Architecture, 2.Architectural design, 3.Building structures,
10	Course summary	1. Geometric constructions: circle, ellipse, conjugation. 2. Geometric constructions: construction of lines of intersection of surfaces, Sections and cuts. 3. Geometric constructions: construction of orthogonal projections, construction of the third type from two data. 4. Axonometric projections. Types of axonometric projections 5-6. Geometric foundations of shading. Shadows of basic geometric shapes. 7-8. Shading curved surfaces (cylinder, cone, sphere) 9-10. Shadows of architectural elements and fragments
11	Learning outcomes	ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management. ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques; materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Design of small architectural forms
2	Code of course	PMAF 2301
3	Cycle of course	BD-VK
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1. Basics of architectural design, 2. Architectural graphics and layout, 3. Architectural composition
9	Postrequisites	1. Computer design, 2. Building structures.

10	Course summary	2.Fulfillment of clause number 1 on the topic: "Gazebo" 3.Fulfillment of clause number 2 on the topic: "Kiosk" 3.Fulfillment of clause No. 3 on the topic: "Stop pavilion" 3.Fulfillment of clause No. 4 on the topic: "Flower pavilion" 4. Development of a volumetric solution at scale 5. Development of projections of facades to scale 6. Development of plans at scale 7 building a volume perspective 8. Development of the general plan 9.Arrangement of drawings on a stretcher 10. Sketching drawings in pencil, on a tablet. Selection and approval of the architectural submission of the draft design
11	Learning outcomes	ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Architecture I
2	Code of course	A 2244
3	Cycle of course	BD-VK
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1. World history of architecture 2.Culturology and psychology 3.Engineering Graphics I, 4. Architectural materials science
9	Postrequisites	3. Architectural design



10	Course summary	<p>1. The main factors influencing the parameters of the building and the architecture of the building. 2. The concept of design and estimate documentation. Design stages. Concept Draft project. The composition of the project. 3. Architectural design of residential buildings. Types of residential buildings. Basic principles for the design of residential buildings. Features of the layout, general layout and landscaping. Elements of the apartment. 4. Architectural design of office institutions. Basic design principles. Features of the layout and general plan. 5. Architectural design of educational institutions. Basic design principles. Features of the layout and general plan. 6. Architectural design of sports and recreation facilities. Basic design principles. Features of the layout and general plan. 7. Architectural design of entertainment establishments. Their classification. Basic design principles. Features of the layout and general plan. 8. Architectural design of transport hubs. Their classification. Basic principles of design. Features of the layout and general plan. 9. Architectural design of trade and public catering enterprises. Their classification. Basic principles of design. Features of the layout and general plan. 10. The concept of unique buildings. Architectural design of multifunctional structures</p>
11	Learning outcomes	<p>ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management. ON7 Studying the principles of designing the bearing skeletons of buildings; building structures and their structural systems. Analyze key problems in the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of equilibrium of material bodies that are under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transfer of the color of the texture of finishing materials.</p>

1	Name of course	Designing a small architectural space
2	Code of course	PAS 2302
3	Cycle of course	PD-VK
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1. World history of architecture, 2. Foundations of architectural design, 3. Architectural graphics and layout, 4. Architectural composition
9	Postrequisites	1. Computer design, 2. Building structures. 3. Architectural design
10	Course summary	<p>1. Image-compositional modeling of architectural space. Issuance of a task. 2. Children's play space. Proposals for the reconstruction of an existing space. Klausura. 3. Practical work No. 1 "Dictionary-Line-Word". 4. The structural basis for the composition of the future space. Abstract compositions on a given theme. 5. Exit from the plane to space. 3D composition based on a previously developed abstract composition. 6. Klausura "Sketch-idea of the small architect. space". 7. Compositional analysis of the main solution. Schemes. 8. Drawings of the main spatial solution: Plan, frontal and profile sweeps. 9. Perspective of the main space. Color solution. Options. Layout. 10. Protection of the course project</p>

11	Learning outcomes	ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management. ON8 Study of the sequence of operations and design stages, taking into account regional design features. Analyze the parameters and characteristics of elements and systems of buildings and structures, take into account the factors influencing the development of architectural projects (natural and ecological, socio-economic, engineering and technical).
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1	Name of course	Designing an individual residential building
2	Code of course	PIZhD 2303
3	Cycle of course	PD-VK
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1. World history of architecture, 2. Engineering Graphics I 3. OAP 4. Designing an architectural environment
9	Postrequisites	1. Computer design, 2. Building structures. 3. Architectural design 4. Degree design
10	Course summary	1. Fulfillment of clause # 1 on the topic: "Planning structure of the dwelling" Format A3. 2. Execution of clause # 2 on the topic: "Country house" Format A3. 3. Fulfillment of clause No. 3 on the topic: "Individual residential house (estate)" Format A2. 4. Fulfillment of clause No. 3 on the topic: "Individual residential building of urban type (cottage)" Format A2. 5. Fulfillment of clause No. 4 on the topic: "Blocked residential building of urban type (townhouse)" Format A2. 6. Detailed development of the project. Development of assignments for term paper, definition: - the number of storeys of the projected building - composition of premises and their areas - constructive frame - determination of the situational scheme and the required size of the land plot - determining the orientation of the building 7. Development of plans for the building of all floors; Execution of drawings of plans on a scale of M1: 100 or 1: 200 8. Development of building facades Execution of drawings of facades on a scale of M1: 100 or 1: 200 9. Development of the general plan. Improvement plan. Execution of drawings on a scale of M1: 100; 1: 500 10. Sketching drawings in pencil, on a tablet. Selection and approval of the architectural submission of the draft design

11	Learning outcomes	<p>ON3 Use programs in the professional design of architectural objects and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management. ON9 Acquisition of skills in designing buildings of any type. Execution of draft designs and demonstration materials. Know the basics of the theory and methods of architectural design (urban planning), the composition and technique of developing design assignments, methods for collecting and analyzing pre-project documentation, the composition and rules for the implementation of architectural and construction drawings and architectural solutions of buildings and volumetric structures, know the theory and methods of architectural composition, the basics visual perception and the principles of ordering forms and spaces. Use normative literature. Analysis of key stylistic problems, compositional solution of the landscape organization of the reconstructed territory.</p>
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1	Name of course	Basics of urban planning
2	Code of course	OG 3211
3	Cycle of course	BD-VK
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1. History of architecture of Kazakhstan, 2. World history of architecture,
9	Postrequisites	1. Architectural design, 2. Degree design 3. Practical activities
10	Course summary	<p>1. Urban and spatial planning 2. Urban zoning and building rules 3. Architectural and planning structure, architectural and spatial composition of the settlement 4. Layout and development of the residential area 5. Planning and development of the production area 6. Planning and development of the public area 7. Preliminary calculations of the size of the territory of the settlement 8. Improvement of the settlement, recreation 9. Transport system of urban and agglomeration. Access system of streets and roads. Environmental requirements for city streets. Transport planning and improvement of backbone networks in the central zones of large cities 10. Draft detailed plan. Basic concepts</p>
11	Learning outcomes	<p>ON8 Explore the sequence of operations and design stages, taking into account regional design considerations. Analyze the parameters and characteristics of elements and systems of buildings and structures, take into account the factors affecting the development of architectural projects (natural-ecological, socio-economic, engineering). Skills of working with data based on urban planning and compositional solutions. ON9 Acquisition of skills in designing buildings of any type. Execution of draft designs and demonstration materials. Know the basics of the theory and methods of architectural design (urban planning), the composition and technique of developing design assignments, methods for collecting and analyzing pre-project documentation, the composition and rules for the implementation of architectural and construction drawings and architectural solutions of buildings and volumetric structures, know the theory and methods of architectural composition, the basics visual perception and the principles of ordering forms and spaces. Use normative literature. Analysis of key stylistic problems, compositional solution of the landscape organization of the reconstructed territory.</p>

1	Name of course	History of Architecture of Kazakhstan
2	Code of course	IAK 4235
3	Cycle of course	BD-VK
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1. World history of architecture
9	Postrequisites	1. typology of the architectural environment 2. Architectural design, 3. Diploma design
10	Course summary	1. The main stages of the development of architecture and urban planning in Kazakhstan 2. Architecture of the ancient period 3. Medieval period 4. The period of formation and development of the Kazakh khanates (early XV - early XVIII centuries); 5. Imperial period (early XVIII - 1917); 6. Soviet period (1917 - 1991); 7. Modern period - (1991 - present) 8. Leading architects of modern Kazakhstan 9. Modern trends in the development of architecture in Kazakhstan 10. Architectural schools of modern Kazakhstan
11	Learning outcomes	ON6 Study of history and causation of the emergence of different styles of architecture in the world. Study national traditions in the architecture of Kazakhstan. Learn to distinguish and use architectural styles in professional activities

1	Name of course	Building structures I
2	Code of course	SK 3210
3	Cycle of course	BD-VK
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1.Math, 2.Engineering Graphics I, 3.Physics 4. Architectural materials science
9	Postrequisites	1.Architectural design, 2.Degree design 3.Practical activities
10	Course summary	1. Basic structural requirements for buildings. 2 Wooden structures 3.Prefabricated reinforced concrete structures 4. Monolithic reinforced concrete structures 5.Metal structures 6.Large-span roofing vaulted reinforced cement shells, 7. Prefabricated reinforced concrete spherical shells, space-rod systems, arch-cable-stayed systems. 8. Loads and impacts on structures. 9. Design schemes of structures 10.Static and kinematic analysis of various types of connections and supports
11	Learning outcomes	ON7 Studying the principles of designing the bearing skeletons of buildings; building structures and their structural systems. Analyze key problems in the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of equilibrium of material bodies that are under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transfer of the color of the texture of finishing materials.

1	Name of course	Research methodology
2	Code of course	MNI 5200
3	Cycle of course	BD-VK
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	5
8	Prerequisites	1.Modern history of Kazakhstan 2.History of architecture of Kazakhstan, 3.World history of architecture, 4.Foundations of urban planning 5.Typology of buildings and structures organization of the architectural environment
9	Postrequisites	1.Degree design 2.Professional activity
10	Course summary	1. Acquaintance with the discipline, goals, objectives, complex methods of work on pre-project analysis. 2. Research in graduate design. Pre-project analysis techniques. 3. Analysis of architectural and planning solutions, options for the planning structure of the design object. 4. Analysis of a constructive solution. 5.Clause on the topic: Formation of a conceptual model of the design object. 6. Discussion and summing up the conceptual model of the future object. 7. Graphic design of the conceptual model: analytical and graphic part of the pre-project analysis. 8. Design of the graphic part of the pre-project analysis. 9. Completion of work on the graphic design of the conceptual model. 10. Protection of the conceptual model
11	Learning outcomes	ON3 Use programs in the professional design of architectural objects and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management ON9 Acquisition of skills in designing buildings of any type. Execution of draft designs and demonstration materials. Know the basics of the theory and methods of architectural design (urban planning), the composition and technique of developing design assignments, methods for collecting and analyzing pre-project documentation, the composition and rules for the implementation of architectural and construction drawings and architectural solutions of buildings and volumetric structures, know the theory and methods of architectural composition, the basics visual perception and the principles of ordering forms and spaces. Use normative literature. Analysis of key stylistic problems, compositional solution of the landscape organization of the reconstructed territory. ON10 Use of sequence of operations and design stages; the ability to independently conduct pre-project research; master the skills of full-scale inspection of an object and analysis of the situation; independent preparation of design assignments and work programs.

1	Name of course	Painting 1
2	Code of course	Zhiv 1241
3	Cycle of course	BD-KV
4	Amount of credits	3

5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	1
8	Prerequisites	1.graphics, 2.composition,
9	Postrequisites	1.architectural design, 2.sketching.
10	Course summary	1. Still life using grisaille technique; 2-3. Still life of geometric shapes 4-5. Still life in warm colors; 6-7. Still life in cold colors; 8-9. Study of a human figure in the interior 10. Portrait
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques: materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Architectural graphics
2	Code of course	AG 1239
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	1
8	Prerequisites	1.Figure
9	Postrequisites	1.Architectural design 2.Degree design

10	Course summary	1. Goals and objectives of the discipline main design stages 2. The main factors affecting the parameters of the internal space 3. Types of architectural graphics. Architectural drawing. Architectural sketch 4 Basics of designing architecture, properties of an architectural object 5 Line graphics and techniques for drawing it Line graphics tools 6. Architectural drawing as a means of expressing design intent 7 Drawings in perspective and perspective 8. Requirements for the execution technique of an architectural drawing Architectural drawing as one of the means of drawing execution 9 Step-by-step execution of the design process 10. The basic rules for drawing up drawings
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques: materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Computer design
2	Code of course	KP 2218
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1. Applied mathematics
9	Postrequisites	1. Modern information computer technologies (ICT) used in the practical activities of the architect.
10	Course summary	1. General concepts of computer technology used in the profession. Computer networks 2. Theoretical and practical foundations for solving problems by means of a spreadsheet processor Microsoft, Excel. 3. Algorithmization and programming languages. 4. Studying software products CorelDRAW, Photoshop, Autocad 5. Formation of databases. 6-7. GOSTs of construction drawing in computer design 8-9. Construction drawing techniques in computer design 10. Registration of drawings in computer programs, release of design products



11	Learning outcomes	ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management.
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1	Name of course	Professionally oriented foreign language
2	Code of course	POIYa 2221
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.knowledge of Russian Kazakh language at a conversational level
9	Postrequisites	1.Translate specialty texts from language to native language in accordance with language norms 2. Proficiency in a professional language
10	Course summary	1.Audio classes to improve listening comprehension 2.Audio classes to improve listening comprehension 3.Problems of understanding English speech 4. Questions to help you understand English better 5. Practice speaking to improve speech 6. Conversation recording tool to track your speech progress 7.Thematic course 8.Thematic course 9.Thematic course 10.Thematic course
11	Learning outcomes	ON1 Analyze the key problems of educational and professional speech. Development of skills and abilities of reading, listening, note-taking of literature in the specialty. Compilation of various kinds of scientific and educational texts, close to the texts of textbooks and lectures, dialogues and monologues on educational and professional topics. Acquire practical skills in building various types of speech activity.

1	Name of course	Figure II
2	Code of course	RI 2212
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.knowledge of Russian Kazakh language at a conversational level
9	Postrequisites	1.Architectural design 2.Sketching 3 sketching
10	Course summary	1. Drawing details of the interior of the interior space; 2-3. Drawing of the interior of the inner space of a residential building; 4-5. Drawing of the interior of a public building; 6-7. Drawing of the exterior of the architectural environment; 8-9. Drawing of a fragment of the urban planning environment; 10. Architectural sketches from nature;
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques; materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Vocationally oriented Kazakh Russian language
2	Code of course	AYaDSC 2223
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.knowledge of Russian Kazakh language at a conversational level
9	Postrequisites	1.Translate specialty texts from language to native language in accordance with language norms 2. Proficiency in a professional language
10	Course summary	1. Determination of the scope of the professional language 2. Professional words and phrases of general use. 3. Grammatical forms and constructions of a professional language at the level of their use in speech 4. Lexical and terminological minima in the specialty. 5. Construction of various types of speech activity. 6. Development of skills and abilities of reading, listening, note-taking of literature in the specialty; 7-8. Acquisition of practical skills and compilation of various kinds of scientific and educational texts, 9-10. Acquisition of practical skills and compilation of various kinds of dialogues and monologues on professional topics;
11	Learning outcomes	ON1 Analyze the key problems of educational and professional speech. Development of skills and abilities of reading, listening, note-taking of literature in the specialty. Compilation of various kinds of scientific and educational texts, close to the texts of textbooks and lectures, dialogues and monologues on educational and professional topics. Acquire practical skills in building various types of speech activity.

1	Name of course	Engineering Graphics II
2	Code of course	IGI 2219
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.Trigonometry 2.Engineering graphics 1
9	Postrequisites	1. Building structures, 2. Architectural design
10	Course summary	1.Engineering and construction drawing, General information about drawings 2. The scale of the drawing. Unified modular system 3 Drawing formats Dimensioning 4. The concept of GOST. GOSTs of construction drawing, Drawing lines, Sections, Cuts, Dimensions, Marks, Inscriptions, Leaders, Links 5. Drawings of floor plans of buildings Conditional graphic designations of windows and doors GOST 21.107 78; 6. Conditional graphic designations of sanitary devices GOST 21.107-78; 7. Conditional graphic designations of ramps and stairs GOST 21.107-78; 8. Orthogonal projections of structures (plans, facades, sections) 9.Drawings of general plans for the development and improvement of the territory 10. Drawings of the vertical planning of the territory. Drawings of engineering structures in projections with numerical elevations
11	Learning outcomes	ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management

1	Name of course	Painting II
2	Code of course	Zh 2218
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.Painting I 2.Picture
9	Postrequisites	1.architectural design, 2.sketching.
10	Course summary	1. Techniques for the image of trees and flowers in painting 2-3. Landscapes of nature; 4-5. Sketch of an animal figure 6-7 Interiors of public space 8-10. Urban landscape;
11	Learning outcomes	ON4 Master the skills of genre graphic art. Learn to transfer images by graphic means using traditional and modern techniques: materials and tools. ON5 Studying the general laws and methods of creating images and images in various types of volumes using different techniques, materials and tools; to acquire practical skills of work in professional activity, as well as to master methods of solving design problems and methods of images on a plane.

1	Name of course	Typology of the architectural environment
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2	Code of course	TAS 3228
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	2
8	Prerequisites	1.World history of architecture 2.Culturology and psychology
9	Postrequisites	1.Architectural design 2.Degree design
10	Course summary	1.General concepts, social foundations and modern tasks of the design of environmental objects 2.Typology of forms of the environment. Classification criteria for environmental objects and systems 3.Principles of organizing volumetric-spatial structures 4. Recommendations for the development of objects of the architectural environment 5. Requirements for design. The main groups of premises, planning elements, communications. 6.Methodological support of project activities 7. Open architectural spaces. Classification of open spaces objects and systems of the urban environment 8. Recommendations for the development of objects of the architectural environment 9. Design of open architectural spaces environment 10.Traditional and prospective, exploratory types and forms of the environment
11	Learning outcomes	ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management. ON7 Studying the principles of designing the bearing skeletons of buildings; building structures and their structural systems. Analyze key problems in the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of equilibrium of material bodies that are under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transfer of the color of the texture of finishing materials.

1	Name of course	World history of architecture
2	Code of course	VIA 3234
3	Cycle of course	BD-KV
4	Amount of credits	5

5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.history of Kazakhstan 2.Culturology
9	Postrequisites	1.Architecture, 2.History of architecture of Kazakhstan 3.Basics of urban planning 2.Degree design
10	Course summary	1.Architecture of Ancient Civilizations. 2. Ancient Greece. 3.Roman Empire 4.Gothic, Romanesque 5 byzantium 6 Arch-Ra of Dr. Japan 7.Arch-ra of Dr. China. 8. ARCH-RADR.America. Archbishop of India 9 Renaissance Baroque 10 classicism
11	Learning outcomes	ON6 Study of history and causation of the emergence of different styles of architecture in the world. Study national traditions in the architecture of Kazakhstan. Learn to distinguish and use architectural styles in professional activities

1	Name of course	3D modeling of designed objects
2	Code of course	PKP 2220
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Informatics 2. Engineering graphics.
9	Postrequisites	1.Degree design 2.Professional activity

10	Course summary	1. Computer graphics. Vector and raster graphics 2. Acquaintance with the interface of the AutoCAD program. The basics of working with the graphic editor AutoCAD. The logic of the program and the principles of interaction The structure of the AutoCAD desktop 3. Mastering and working with layers. Programming layers 4. Working with the library Working with texts 5. Build commands Configuring object snaps 6. Formation of images. Editing Dimension Styles Performing a Job to Create Local Fillet Curves 7. Mastering the sheet manager. saving, sending to print 8. Mastering a computer program for 3D construction 9 textures and textures of finishing materials 10. Lighting and shadows. Render
11	Learning outcomes	ON3 Use programs in the professional design of objects of architecture and software products intended for design. Introduction of new computer technologies into the industrial and social spheres, technical advances in the field of communications. Studying software products CorelDRAW, Photoshop, 3dMAX. Acquire practical skills in the development of architectural drawings, project design. Studying the role of ecology in solving modern environmental problems of our time. Practical skills in working with natural resources and environmental management

1	Name of course	Architectural materials science
2	Code of course	AM 3226
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1. Mathematics, 2. Engineering Graphics 3. Physics
9	Postrequisites	1. Technology page production 2. Architectural Design 3. Diploma Design 3. Professional Activity
10	Course summary	1. Basic physical and chemical properties of building materials. 2. Materials and products made of natural stone. 3. Concrete, yellow concrete. Solutions and astringents. 4. Ceramics. Plastering and cladding works. 5. Wood products 6. Glass and glass products. Raw materials, manufacturing technology and application. 7. Paints and varnishes, anti-corrosion coatings, Malar, 8. Thermal insulation, hydro-vapor insulation, acoustic materials and products. 9. Polymer building materials 10. Blood materials and sealants.



11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color of the texture of finishing materials.
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1	Name of course	Designing a medium-storey apartment building
2	Code of course	PZhDSE 3307
3	Cycle of course	BD-KV
4	Amount of credits	6
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Architectural design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1. Performing clause number 1 on the theme: "Developing a typical section of an apartment building with 3 types of apartments" 2. Performing clause number 2 on the theme: "Finding the image of an apartment building" Format A1 3. Performing clause number 3 on the theme: "Options of facades of a sectional type of apartment building, in different architectural styles" Format A1 4. Performing clause number 4 on the theme: "Project of a sectional apartment building of the middle floor" Format A1 6.Approval of sketch-ideas. Develop several options for planning solutions 7. Designing the facades of the building. Options of arbitrary scale 8. Develop options for apartments and floor plans of the house. Functional zoning is a link to the site. 9.Develop a master plan. Layout on tablets 10. The layout of the drawings on the tablets. Choosing an architectural filing

11	Learning outcomes	<p>ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; To master the in-kind survey of the object and the analysis of the situation; self-drafting and work programs.</p>
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1	Name of course	Construction technology
2	Code of course	TSP 3225
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1. Architectural Materials Science
9	Postrequisites	1. Diploma Design 2. Professional Activities
10	Course summary	<p>1. Production technology and the use of Concrete, yu concrete. 2. Technology of production and application of solutions. Stone works. 3 Plastering and cladding works. 4. Glass and glassware. Raw materials, manufacturing technology and application. 5. Production technology and the use of anti-corrosion coating varnishes. Painter, 6. Gypsum concrete and asbestos cement products 7. Thermal insulation, hydro-vapor insulation, acoustic materials and products. Waterproofing works. 8. Blood materials and sealants. Roofing. 9. Construction machines. earthwork. 10. Drilling. Pile works. technique</p>
11	Learning outcomes	<p>ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color of the texture of finishing materials.</p>

1	Name of course	Designing a monofunctional public building
2	Code of course	PMZhK 3305
3	Cycle of course	PD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Architectural design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1.Performing clause Number 1 on the theme: "Thematic Café for 100 seats" Format A1 2. Performing clause number 2 on the theme: "Disco Club for 300 seats" Format A1 3. Performing clause number 3 on the theme: "Art Gallery (Exhibition Pavilion)" FormatA1 4. Performing clause number 4 on the theme: "Fitness Club."Format A1 5.Planning decision of the selected object 6. Designing the facades of the building. Options of arbitrary scale 7. Functional zoning link with the land. 8.Development of the master plan. 9. Layout of drawings on tablets. Choice Architectural Filing 10.Protecting the Project
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory.

1	Name of course	Architectural designs
2	Code of course	AK 3224
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Mathematics, 2.Engineering Graphics 3.Building Manufacturing Technology 4.Building Construction
9	Postrequisites	1.Architecture Design 2.Diploma Design
10	Course summary	1.Constructive elements of the building. Classifying items. 2. Basic design requirements for the elements of building 3.Types of Foundations 4.Walls and frames 5.Closing and covering 6.Roof 7.Windows doors, stained glass 8. Elements of buildings (balconies loggia bays vent.channels) 9.Floors 10.Stair-lift knots
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials.

1	Name of course	Designing educational institutions
2	Code of course	PUVS 3306
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Architectural design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1. Lecture on "Basic Principles and Modern Trends in the Design of Kindergartens" Performing Clause No.1 on the theme: "Creating an image of a kindergarten with the development of a functional scheme" Format A1 2. Lecture on "Basic Principles and Modern Trends in School Design" Performing Clause No.2 on the theme: "Finding the image of a school institution with detailed development of the entrance group" Format A1 3. Lecture on "Basic Principles and Current Trends in the Design of Higher Institutions Training Corps" Performing Clause No.3 on the theme: "Creating an image of the training corps with the development of a functional scheme" Format A1 4 Protection clause. Choosing a course theme 5 Formation of the building's planning structure. Options of arbitrary scale 6. Forming the facades of the building. Options of arbitrary scale 7. Drawing plans and facades of the building on a scale of 8. Development of General Plan 9. Graphic presentation and formation of demonstration material 10. The layout of the drawings on the tablets. Choosing an architectural filing
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; To master the in-kind survey of the object and the analysis of the situation; self-drafting and work programs.

1	Name of course	Energy-efficient design
2	Code of course	AFEP 3230

3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1. Typology of buildings and structures the organization of architectural environment 2.Regional features of architectural design
9	Postrequisites	1.Architecture Design 2.Diploma Design 3.Professional Activity
10	Course summary	1.Types of Alternative Energies 2. The climate and its elements. 3.History of Voluntary Environmental Standards 4.Comparative analysis of international environmental standards LEED AND BREEAM 5. A brief overview of some national standards. Step-by-step program to develop and implement Standard 6. Government policy on environmental construction and energy conservation 7.Types of energy efficient buildings 8. Thermal microclimate of premises. 9.Comparison of environmental efficiency indicators 10.Environmental building standards in Kazakhstan
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials.

1	Name of course	Designing a multifunctional residential complex
2	Code of course	PMOZ 3304
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design

7	Year	4
8	Prerequisites	1.Architectural Design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1.Performing clause Number 1 on the theme: "Developing a stairwell and elevator node of an apartment building with an entrance group entrance" Format A2 2. Performing clause number 2 on the theme: "Multi-storey apartment building tower type 9-16-storey" Format A1 3. Performing clause Number 3 on the theme: "Project of a multi-storey residential complex sectional type 9-30-storey" Format A1 4 Performing clause No.4 on the theme: "Project MIK in a certain architectural style" Format A1 5.Approval of the sketch-idea. Develop several options for planning solutions 6. Designing the facades of the building. Options of arbitrary scale 7. Functional zoning is a link to the site. Drawings in M1:200 8.Development of variants of facades main, yard, side. Drawings in M1:200 9.Development of the General Plan. Layout on tablets Drawings in M1:200 10. The layout of the drawings on the tablets. Choosing an architectural filing
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, compositional solution of the landscape organization of the reconstructed area. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; To master the in-kind survey of the object and the analysis of the situation; self-drafting and work programs.

1	Name of course	Regional features of architectural design
2	Code of course	ROAP 3227
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1.History of Architecture of Kazakhstan, 2.World History of Architecture, 3.Basics of Urban Planning
9	Postrequisites	1.Project of the layout of populated areas, 2.Pre-graduate project

10	Course summary	1. The place and role of discipline in a range of general theoretical and special disciplines of the curriculum. Discipline structure. 2. The basics of the concept of "urban landscape." The urban landscape as a result of architectural, urban planning and construction activities. 3. Typology of Urban Landscape 4 Factors influencing the design of architectural objects in the structure of the urban landscape. 5. Methods for assessing the state of the urban landscape Environmental impacts of man-made impacts on the urban landscape. The general principles of harmonizing the urban environment with regional design in mind. 7. Characteristics of natural and man-made landscapes of Northern Kazakhstan. Analysis of the current state of the architectural environment of Northern Kazakhstan 8. Methods of harmonization of the architectural environment of Northern Kazakhstan. Composite, planning. 9. Methods of harmonization of the architectural environment of Northern Kazakhstan. Volume-spatial, artistic methods of harmonization 10. Modern trends in the formation of architectural objects (in the example of Astana)
11	Learning outcomes	ON3 Use programs in professional design of architecture and software products designed for design. Introduction to the production and social sphere of new computer technologies, technical advances in communications. CorelDRAW, Photoshop, 3dMAX software studies. To acquire practical skills in the development of architectural drawings, design projects. Exploring the role of ecology in solving modern environmental problems of our time. Practical skills in natural resources and environmental management ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials.

1	Name of course	Engineering landscaping
2	Code of course	IBT 3229
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1. Typology of buildings and structures the organization of architectural environment 2. Regional features of architectural design
9	Postrequisites	1. Project of reconstruction and detailed planning 2. Architecture design 3. Diploma design
10	Course summary	1. Basics of designing vertical planning of areas. The formation of a surface runoff and its organization. 2. Draining urban area. The improvement of the coastline. 3. Taking into account seismic conditions in the layout of cities. 4. Sidewalks, pedestrian streets and bike paths. The concept of urban transport. The basic principles of designing the transport system. 6. Purpose and classification of streets and roads. Determining the width of the roadway of streets and roads. 7. Longitudinal and cross street profiles. 8. The concept of The Breakdown Plan 9. Concept Plan for the improvement of the territory 10. Plan of relief organization. Earth mass plan.



11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials.
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1	Name of course	Reconstruction of a small town
2	Code of course	RMG 4300
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1.Regional features of arch-design 2.project of planning of rural settlements
9	Postrequisites	1.MNI 2.Design of more comprehensive structures 3.Pre-graduate project
10	Course summary	Studying the raw data and preparing materials for the course project. 2. Preparing a topographical basis. Resettlement scheme. Landscape analysis of the territory. 3. Preliminary calculations for the project: Population calculation, calculation of housing stock, calculation of public buildings. 4.Preliminary balance of territory. 5.Functional zoning. 6. Development of architectural and planning structure. 7. Execution of planning schemes. Choosing and approving the best option of architecturally - planning structure. 8.Reconstruction of the master plan. 9.Development of the production zone. 10.Develop schemes and drawings explaining the architectural and planning structure. Designing the graphic part of the project.
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON8Exploring the sequence of operations and design stages, taking into account regional design features. To analyze the parameters and characteristics of elements and systems of buildings and structures, to take into account the factors influencing the development of architectural projects (natural-environmental, socio-economic, engineering).

1	Name of course	Economics in design and construction
2	Code of course	EPS 4200
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1 Construction Engineering Technology 2 Architecture Design 3. Energy-efficient Design
9	Postrequisites	1.MNI 2.Pre-Graduate Project
10	Course summary	1.Basic funds of the national economy, their wear, reproduction 2.Capital in construction and its variety 3.Management of construction in our time. 4. Customer and its functions for identifying and managing investments 5. Economic foundations of construction design feasibility study and evaluation of projects. 6. Economic Assessment of Real Estate 7.Economic Foundations of Project Organizations 8.Basics of Economic Land Assessment in Construction. 9. The concept of rent. its types and characteristics 10Sopy and characteristics of the building material base
11	Learning outcomes	ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; Master the skills of in-kind examination of the object and analysis of the situation; self-drafting and work programs.

1	Name of course	Designing trade and entertainment
2	Code of course	TRS 4308
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1.Architectural Design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1. Lecture on "Basic Principles and Modern Trends in the Design of Shopping and Entertainment Centers" 2.Performing clause No.1 on the topic: "Finding the image of a shopping and entertainment center" Format A1 3.Performing clause No.2 on the topic: "Detailed development of the general plan of the shopping and entertainment center "Format A1 4.Performing a fore-sketch on the chosen theme Format A1 5.Development and approval of plans for the first floor building, typical floor Drawings M1:100 6. Design and approval of the facades of the building: the main, side drawings M1:100 7. Design and approval of the architectural cut Drawings M1:100 8. Design and approval of the facades of the building: the main, side drawings M1:100 9. Design and approval of the architectural cut Drawings M1:100 Design and approval of the General Plan Drawing M1:500 10. The layout of the drawings on the tablets. Choosing an architectural filing
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; To master the in-kind survey of the object and the analysis of the situation; self-drafting and work programs.

1	Name of course	Architectural physics
2	Code of course	AF 4200
3	Cycle of course	BD-KV
4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1. Typology of buildings and structures the organization of architectural environment 2.Regional features of architectural design
9	Postrequisites	1.Architecture Design 2.Diploma Design 3.Professional Activity
10	Course summary	1. The concept of architectural physics, its tasks and its significance. 2. Climate and its elements. 3. Thermal microclimate of premises. 4. Thermal rationing of fencing structures. 5. Wet mode of fencing structures. 6. The basics of architectural light. Spatial lighting characteristics. 7. Rationing and designing the natural lighting of buildings. 8. Rationing and designing of artificial lighting. 9. Normalization and design of insolation. 10. Basics of architectural acoustics. The acoustics of closed and open architectural spaces. Acoustic calculation.
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials.

1	Name of course	Designing agro-industrial facilities
2	Code of course	POAN 4309
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1.Architectural design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1. Classification of the APC Performance of clause No.1 on the theme: "Architectural image of the production module" Format A1 2.Performing clause No.2 on the theme: "Architectural image of the greenhouse complex" Format A1 3.Performance of clause No.3 on the theme: "Architectural image of the pastoral complex (KRS, conference, poultry farm)" Protection clausers. Choosing the theme of coursework 5.Performing a for-sketch on the topic of coursework 6. Formation of the planning structure of the building. Options of arbitrary scale 7. Forming the facades of the building. Options of arbitrary scale 8.Development of the general plan of the complex. 9. Graphic presentation and formation of demonstration material 10. The layout of the drawings on the tablets. Choosing an architectural filing
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, compositional solution of the landscape organization of the reconstructed area.

1	Name of course	enterprise
2	Code of course	Pre 4200
3	Cycle of course	BD-KV

4	Amount of credits	3
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1.History of Kazakhstan 2.Culturology 3.Regional features of architectural design
9	Postrequisites	1.Architecture Design 2.Diploma Design 3.Professional Activity
10	Course summary	1-2. Entrepreneurial resource of the society. The concept and essence of entrepreneurship. The history of entrepreneurship. The economic, social and legal conditions necessary for business. Enterprise functions. 3. Enterprise typology 4. Enterprise classification. Types of entrepreneurship. Forms of entrepreneurship. 5. Entrepreneurial environment. Subjects of business activity. The essence of the entrepreneurial environment. External business environment. Domestic business environment. 6. Small business and its development. Small business's place in the market economy. Criteria for determining small business. 7. State support for small business. Directions of state support for small business. Forms of state support for small business. Small business support infrastructure. State support for small businesses. 8. Entrepreneurship culture. Entrepreneurial mystery. The concept and essence of entrepreneurial secrecy. Components of entrepreneurial secrecy. Protecting entrepreneurial secrecy. 9-10. Entrepreneurial risk. The concept of entrepreneurial risk. Types of entrepreneurial risks: manufacturing, financial, commercial, etc. Factors influencing the level of entrepreneurial risk.
11	Learning outcomes	ON2 To analyze the key problems in the scientific, philosophical, cultural and ideological foundations of artistic creativity, which are manifested in different historical epochs, to know about the most important periods and events in the history of Kazakhstan, Kazakh statehood in the development of the historical and cultural community of the peoples of the Eurasian world. The ability in the field of education is the ability to analyze key problems, navigate the cultural space of society, be able to comment and analyze political materials published in the media. Scientific understanding of the sociological approach to the individual, the factors of its formation in the process of socialization, the basic patterns and forms of regulation of social behavior, the nature of the emergence of social communities and social groups. ON3 Use programs in professional design of architecture and software products designed for design. Introduction to the production and social sphere of new computer technologies, technical advances in communications.

1	Name of course	Modern architecture
2	Code of course	SA 4236
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4

8	Prerequisites	1.History of Kazakhstan 2.Culturology 3. World History of Architecture 4.History of Kazakhstan Architecture
9	Postrequisites	1.Architectural Design 2.Diploma Design 3.Professional Activity
10	Course summary	1.Architecture of the era of imperialism 2.Eclecticism (pseudostyli) 3.Chicago School 4.Organic Architecture F.L. Wright 5.Modern 6.Modernism (functionalism, constructivism, expressionism, brutalism, monumentalism, regionalism) 7.Creativity of Le Corbusier 8.Postmodernism (Hightek, deconstructivism, ecology) 9.Winners of the Pritzker Prize 10.Modern currents in architecture
11	Learning outcomes	ON6 Studies of history and the causal relationship between the emergence of different styles of architecture in the world. To study national traditions in the architecture of Kazakhstan. Learn to distinguish and use architectural styles in professional activities

1	Name of course	Designing larger-end structures
2	Code of course	PBS 4310
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	5
8	Prerequisites	1.Architectural Design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity

10	Course summary	The basic concepts and requirements of the coursework are presented. Lecture on "Basic Principles and Current Trends in Designing Unique More-Year-Old Buildings." 2.Performance of clause No.1 on the theme: "Finding the image of a business center with detailed development of the general plan" Format A1 3.Performing clause No.3 on the theme: "Search for the image of a spectacular building (theatre, Concert Hall) with detailed development of the general plan" Format A1 4.Performance of clause No.4 on the theme: "Finding the image of the stadium with detailed development of the general plan" Format A1 5.Performance of clause No.5 on the theme: "Finding the image of the station (airport) with detailed development of the general plan" Format A1 6.Performance of the fore-sketch on the chosen topic Rmat A1 7.Development and approval of plans for the first floor building, model floor Drawings M1:100 8. Design and approval of the facades of the building: the main, side drawings M1:100 9. The development and approval of the architectural cut Drawings M1:100 Design and approval of the General Plan Drawing M1:500 10. The layout of the drawings on the tablets. Choosing an architectural filing
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; To master the in-kind survey of the object and the analysis of the situation; self-drafting and work programs.

1	Name of course	Pre-project analysis
2	Code of course	PAMNI 4232
3	Cycle of course	BD-KV
4	Amount of credits	6
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	5
8	Prerequisites	1.Modern History of Kazakhstan 2.History of Kazakhstan Architecture, 3.World History of Architecture, 4.Basics of Urban Planning 5.Typology of Buildings and Buildings Organization of architectural environment
9	Postrequisites	1.Diploma Design 2.Professional Activities
10	Course summary	1. Research in the diploma design. 2. Study of analogues on the subject design of the pre-project analysis methodology. 3. Analysis of architectural and planning solutions. 4.Options for the planning structure of the design object. Analysis of constructive solutions. 6.Analysis of general plans. Determining the necessary zones 7.Technological scheme 8. Designing the graphic part of the pre-project analysis. 9.Completion of the graphic design of the concept model. Protecting the concept of the project



11	Learning outcomes	<p>ON3 Use programs in professional design of architecture and software products designed for design. Introduction to the production and social sphere of new computer technologies, technical advances in communications. CorelDRAW, Photoshop, 3dMAX software studies. To acquire practical skills in the development of architectural drawings, design projects. Exploring the role of ecology in solving modern environmental problems of our time. Practical natural resource skills and sustainable natural use ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; Master the skills of in-kind examination of the object and analysis of the situation; self-drafting and work programs.</p>
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1	Name of course	Pre-graduate project
2	Code of course	PP 4311
3	Cycle of course	BD-KV
4	Amount of credits	6
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	5
8	Prerequisites	1.Architectural Design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures the organization of the architectural environment
9	Postrequisites	1.Diploma Design 2.Professional Activities
10	Course summary	1. Editing the theme of the diploma design Assignment on design 2.Selection of raw data for the design (situational scheme, PDP district) Sampling of SNPs and regulatory literature on the subject of the diploma work. 3. Determining the composition of the premises and their areas 4.Development of the functional volume scheme clouser Format A2 5.Development of the planning structure of the volume of clouser Format A2 6.Development of the facades of Clouser Format A2 7.Development of the General Plan Clause Format A2 8.Making of the main drawings of the project 9.Formation of the project and the draft explanatory note 10. Protecting the project

11	Learning outcomes	<p>ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory. ON10 Using a sequence of operations and design stages; the ability to conduct pre-project research on their own; To master the in-kind survey of the object and the analysis of the situation; self-drafting and work programs.</p>
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1	Name of course	Engineering systems of buildings and structures
2	Code of course	ISZS 5353
3	Cycle of course	BD-VK
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Math, 2.Engineering Graphics I, 3.Physics 4. Architectural materials science
9	Postrequisites	1. Technology of construction production 2.Energy efficient design 3.Degree design 4.Practical activities
10	Course summary	1.Heating Heating Technology 2 Heat engineering calculation 3 Ventilation systems 4.Water supply systems 5.Sewage 6 acoustics 7.Artificial Lighting 8 insulation and its calculation 9.Low current connections 10 domestic transport
11	Learning outcomes	<p>ON8 Study of the sequence of operations and design stages, taking into account regional design features. Analyze the parameters and characteristics of elements and systems of buildings and structures, take into account the factors influencing the development of architectural projects (natural and ecological, socio-economic, engineering and technical). Skills of working with data based on urban planning and compositional solutions.</p>

1	Name of course	The interior of residential and public buildings
2	Code of course	IZhOZ 4248
3	Cycle of course	PD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	3
8	Prerequisites	1.Architectural Design 2.OAP, 3.architectural graphics and layout, 4.architectural composition, 5.Typology of buildings and structures organization of architectural environment
9	Postrequisites	1.Pre-graduate project 2.Diploma design 3.Professional activity
10	Course summary	1.Performing clause number 1 on the theme: "Thematic interior of the loggia or terrace" Format A2 2. Performing clause number 2 on the theme: "Interior of the Kitchen Space" Format A2 3. Performing clause number 3 on the theme: "Interior of the Common Room" FormatA2 4. Protection and analysis of clause 5. Planning solution of the chosen interior 6. Sweep the walls Options of arbitrary scale 7. Floor plan ceiling plan. 8. Execution of the prospect. 9. Layout of drawings on tablets. Choice Architectural Filing 10.Protecting the Project
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON9 Acquire building design skills of any type. Sketch projects and demonstration materials. Know the basics of theory and methods of architectural design (urban design), composition and technique of design assignments, methods of collecting and analyzing pre-project documentation, composition and rules of implementation of architectural and construction drawings and architectural solutions of buildings and volume structures, know the theories and methods of architectural composition, the basics of visual perception and the principles of ordering forms and spaces. Use regulatory literature. Analysis of key stylistic problems, a compositional solution of the landscape organization of the reconstructed territory.

1	Name of course	Landscape design
2	Code of course	LP 4218
3	Cycle of course	BD-KV
4	Amount of credits	4
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	4
8	Prerequisites	1. Typology of Architectural Environment 2. Architecture 1
9	Postrequisites	1. MNI 2. Architectural Design 3. Pre-Graduate Project
10	Course summary	1. Factors shaping the landscape. 2. Types of spatial structure. 3. The ratio of spatial structure types. 4. Types of compositional landscape construction. 5. Composition of open spaces. 6. Composition of wood - shrubs. Greening, their relationship with the components of landscaping 7. Norms, rules and materials used in the design 8. Small shapes as components of the architectural landscape 9. The means of landscape composition 10. Spatial forms in landscape art.
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color texture of finishing materials. ON8 Exploring the sequence of operations and design stages, taking into account regional design features. To analyze the parameters and characteristics of elements and systems of buildings and structures, to take into account the factors influencing the development of architectural projects (natural-environmental, socio-economic, engineering).

1	Name of course	Professional computer programs
2	Code of course	PKP 5220
3	Cycle of course	BD-KV
4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	5
8	Prerequisites	1.Computer Design 2.Three-dimensional Image of Objects
9	Postrequisites	1.Diploma Design 2.Professional Activity
10	Course summary	1. Get to know the Revit interface. 2.Basics of work with the graphic editor Revit Logic work program and the principles of interaction 3.The structure of the desktop Revit 4.Formation of images. 5.Editing size 6.Performing a job to build local curves "Pairing" 7. 3D build in Revit. 9.Textures and textures of finishing materials 10.Lighting and shadows. Render
11	Learning outcomes	ON3 Use programs in professional design of architecture and software products designed for design. Introduction to the production and social sphere of new computer technologies, technical advances in communications. CorelDRAW, Photoshop, 3dMAX software studies. To acquire practical skills in the development of architectural drawings, design projects. Exploring the role of ecology in solving modern environmental problems of our time. Practical skills in natural resources and environmental management

1	Name of course	Detailed planning project
2	Code of course	PDP 3354
3	Cycle of course	BD-KV

4	Amount of credits	5
5	Level of preparation	Undergraduate studies
6	Department	Architecture and design
7	Year	5
8	Prerequisites	1.Regional features of arch-design 2.project of planning of rural settlements
9	Postrequisites	1.MNI 2.Design of more comprehensive structures 3.Pre-graduate project
10	Course summary	1. Issue of the job. Studying the original data. 2. Analysis of the raw data: - landscape analysis of the territory; Analysis of functional zoning Urban analysis, etc. 3. Identifying the necessary technological zones 4. Sketching; options for organizing a transport and pedestrian network. 5-6. Performing sketches of detailed layout and landscaping. M 1:2000. 7. Approval and refinement of detailed layout sketches. M1:500. 8. Sketching and approving IAF and beautification elements. 9. Graphic delivery of the course project. Develop and approve layout options on tablets. Drawing in pencil. 10. Graphic feed of the PDP. M 1:2000
11	Learning outcomes	ON7 Exploring the principles of building's bearing skeleton design; buildings and their design systems. Analyze key problems on the planning schemes of civil and industrial buildings. must be aware of the forces and conditions of the equilibrium of the material bodies under the influence of forces. Practical skills in the development of volumes and images of architecture in the graphic transmission of the color of the texture of finishing materials. ON8 Exploring the sequence of operations and design stages, taking into account regional design features. To analyze the parameters and characteristics of elements and systems of buildings and structures, to take into account the factors influencing the development of architectural projects (natural-environmental, socio-economic, engineering).